Lighting: Simplification of Tailored Method

Description

There are three methods to determine the lighting power allowance in nonresidential buildings: the complete building method, the whole area method, and the tailored method. The tailored method is most complicated since it is based on the IESNA system of illuminance categories. Lighting allowances depend on the IESNA illuminance task, the room cavity ratio (RCR) of the space, and for display lighting, the throw distance. The tailored method is most commonly used for retail lighting. In this case, a separate lighting allowance is produced for general illumination, wall displays, and feature displays. Rules have been introduced over the years to reduce the "gaming" opportunities from interpreting the IESNA illuminance categories. However, the procedures for retail lighting power density (LPD) have remained relatively unchanged since the mid-1980s. Compliance documentation for the tailored method must include plans and details typically not part of an electrical design drawing set.

This *Standards* change would simplify the tailored method to a table of standard lighting power allowances for retail spaces, more like the complete building or whole area methods. RCR or throw distance adjustments would continue to be a factor, but would be approximated by room size and ceiling height. One approach would be to develop a table of maximum LPD values for various retail store types. The tables would be based on the current tailored method with specific assumptions about geometry, useable wall area, etc. Use-it-or-lose-it could be applied by having a separate calculation for only those areas, preventing any unused watts from being utilized elsewhere or traded off against other building features. The support areas in retail occupancy, such as restrooms and corridors, would be determined either by a whole area allowance or by a retail general value that would be part of the retail table. The tailored method might remain for unique and unusual projects, although specific standards and comments should be updated to correspond with the *IESNA Ninth Edition Handbook*

The lighting power allowance table for retail spaces might look like the following:

Space type	Ceilings over 12 ft or spaces smaller than 3000 ft_	Ceilings over 15 ft or spaces smaller than 2000 ft_	Ceilings over 18 ft or spaces smaller than 1200 ft_
General retail	--	--	--
Grocery	--	--	--
Premium grocery	--	--	--
Clothing	--	--	--
Premium clothing	--	--	--
China and silver	--	--	--
Jewelry	--	--	--
Posters and gallery art	--	--	--
Fine art	--	--	--
Etc…….	--	--	--

Benefits

A revision of the tailored method would reduce compliance documentation and enforcement costs, especially for retail lighting. Since values in the proposed simplified table would be based on the current tailored method, the values will be the same or lower than the current standard.

Environmental Impact

This proposed measure is energy neutral and would have no significant environmental impacts.

Type of Change

Existing *Standards* language would be replaced under this change.

Measure Availability and Cost

This measure would not affect the cost or the availability of lighting systems.

Useful Life, Persistence and Maintenance
No significant change to current practices would occur with this measure.

Performance Verification
No performance verification is needed for this measure.

Cost Effectiveness
Since this measure does not change the allowed LPD but saves compliance costs, it is cost effective.

Analysis Tools
As a check, the tables would be tested against complying designs using the current tailored method. If the new method allows similar LPDs, it would be a suitable replacement.

Relationship to Other Measures
The compliance forms would have to be changed to embrace this revised method.

Bibliography and Other Research
The *IESNA Ninth Edition Lighting Handbook* revised the use and meaning of the illuminance categories, changing them significantly from the current *Standards*.